

USCMS 3KW Low Voltage Power Supply

Assembly Specification

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Revised

General Information

The 3KW Power Supply is an assembly to be used to power elements of the CMS Calorimeters system. As such the design is specialized for the location where it will be deployed. The 3Kwps is designed with magnetic field shielding and other components that will allow it to operate in a 1500 gauss environment. The input power to the 3KWps is 230VAC @ 400Hz was chosen to allow the physical size of the power supply to be minimized. The output is 48VDC @ 70A. The power supply chassis is 16 gauge steel and has dimensions of 53cm x 21.0cm x 21.7cm. The assembled weight is 50KG (110lbs). The power supply is water-cooled. A control board allows for remote or local control, status read-back and fault protection.

Wiring to comply with IEC 60950 section 3.0-3.5.

Parts

- All parts for this assembly are supplied by Fermilab with the exception of tie backs, and cable restraints that are needed to route and dress the finish assembly. Non- Insulated crimp terminals of common sizes should be supplied by the vendor for his convenience of assembly.
- Fermilab will supply halogen free wire that is used for assembly.
- All hardware will be metric sizes will be supplied by Fermilab..
- Vendor must identify and verify all parts provided and quickly notify Fermilab of any discrepancies.
- All parts description and quantities will be provided by Fermilab on the attached BOM file USCMS 3KW LV-Power Supply.xls. See notes column for exceptions.

Assembly Documentation

Fermilab will supply all applicable assembly drawings and text files.

- BOM list of 66 unique items to be used in the assembly.
- Manual for 3KW LV-Power Supply - ECAL_3000_manual.doc
- Pictures of sub-assemblies.
- Documentation is available on website:

<http://www-ppd.fnal.gov/EEDOffice-w/Projects/CMS/LVPS/index.html>

- Assembly Drawings

Front Panel Assembly	3892-136-MD-330513
Back Panel Assembly	3892-136-MD-330514
Chassis Assembly	3892-136-MD-330512
AC-DC Core Assembly	3892-136-MD-330522

Diode Bus Assembly
Inductor Assembly
Relay Assembly

Please review the assembly drawings for other pertinent information.

Assembly Inspection

- Vendor must provide a thorough visual inspection. Pull test on wire terminations, screws checked for tightness, wire ties cut flush so as to avoid cuts and no unnecessary stress on wiring or terminal connections.

Module Assembly

- Vendor is required to assemble the CLM board to the front panel using the appropriate hardware.
- Vendor must apply proper torque as specified to target devices that are specified in BOM.

Wiring Considerations

- Vendor must identify all wiring with heat shrunk labels that are and readable.
- Vendor must identify key components with schematic reference designators screened near components.
- The vendor is required to comply to IEC Standard for assembly wiring IEC-60950 section 3.0-3.5.3

Testing (optional)

- Testing will not be required of these pre-production assemblies. We will test all 10 units at Fermilab.

Bidding Period

- Upon receipt of Fabrication package vendor will have 5 days to submit their bids. Close of bid evening of 5th working day.

Quantities of Assemblies Each Phase

A total of 10- 3KW LV-Power Supplies will be assembled by two vendors of choice. There will be 5 units built by each.

- 1- 3KW LV-Power Supply assembly for first approval must be provided of each assembly.
- 4- assemblies for the second phase will be fabricated after Fermilab approval.

Delivery Schedule

- Documentation necessary to assemble the LVPS is expected to be available in December 10,2004.
- Delivery of first article assemblies must be within 2 weeks of the receipt of Fermilab supplied parts.
- Delivery of final 4- 3KW LV-power Supply must be 2 weeks after final approval is given.

Fabrication Documentation

Fermilab Documentation attached to this bid package is for bidding purposes only. Final documentation will be provided at the award of the contract.

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